Illinois
Environmental
Protection Agency

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Ozone, Smog, and You

The Problem

Ozone is both a curse and a blessing in the environment. In the lower, breathable part of the atmosphere, ozone is harmful to crops, forests, materials and the health of humans and animals; in the upper atmosphere, ozone absorbs the harmful rays (ultraviolet-B) of sunlight.

The continuing depletion of the upper ozone layer is a serious concern. Unfortunately, harmful ozone in the lower air does not move up to replenish the deteriorating ozone layer in the high reaches of our atmosphere.

Ozone in the lower air—where it is often called smog—continues to be one of our most pervasive air pollution problems. Many areas of the country do not now meet current health and welfare standards for ozone, and probably will not do so in the foreseeable future.

Health Effects

A growing body of scientific data indicates that health and welfare effects associated with ozone are more serious than envisioned in the late 1970s. Some scientists believe that existing air-quality standards may provide little or no margin of safety. Perhaps the most significant new finding is that ozone not only affects people with impaired respiratory systems, such as asthmatics, but also many people with healthy lungs, both children and adults. It can cause shortness of breath and coughing when healthy adults are exercising, and more serious effects in the young, old, and infirm. Recent EPA estimates suggest there are 20 million to 30 million ozone-sensitive people in those major urban areas where levels are 25 percent or more above the current health standards. Equally high levels are often recorded in rural sectors downwind from these metropolitan areas.

Welfare Effects

Evidence from scientific studies of vegetation indicates that ozone can reduce plant yield in tomato, bean, soybean, snap bean, peanut and corn crops. The potential agricultural losses are estimated to be two billion to three billion dollars per year.

Ozone also has an impact on forests, causing premature leaf-drop and lower growth rates.

Materials damage attributed to ozone includes cracking of rubber products, weakening of textiles, changes in dyes, and premature cracking of paint.

The Sources

While ozone is not actually emitted from smokestacks and tailpipes, it is an indirect product of our industrial/automotive age. Ozone is produced when sunlight acts upon hydrocarbons and nitrogen oxides. These substances are emitted by millions of small sources (automobiles, dry cleaners, auto-body paint shops, gas stations, etc.) spread out all over the country, as well as by many industrial processes. Ozone levels are highest during the day, after morning traffic has released large amounts of contaminants and while industries using solvent-based compounds are operating.

The Challenge

Ozone is one of the most serious environmental challenges of the 1980s. Few, if any, urban areas are free of it. Four broad geographic regions are seriously affected: California, the Northeast, the Texas Gulf Coast, and the Chicago-Milwaukee area.

Some 15 years experience in trying to solve the ozone problem has revealed that controlling substances generated just about everywhere by a great variety of processes is a most complex task.

Air pollution regulations on industry have reduced some emissions, but more will have to be controlled. Motor vehicle traffic is growing so fast that even strenuous control efforts may not sufficiently reduce emissions. And the large number of small sources makes any new rule difficult to communicate and enforce.

Because the sources and causes vary from area to area, no single solution will be best for all communities. Any solution will probably be controversial since it is likely to have economic impacts on almost everyone.

What You Can Do

Citizens should be aware of what control programs are being considered by their states and should take an active role in planning and carrying out effective air pollution control measures.

In addition, you can help reduce emissions from the small sources which you control. Keep motor vehicles properly tuned and drive no more than necessary. Use water-based or solvent-free paints instead of oil-based or solvent-based paints. And, whenever feasible, use only solvent-free household products.

For more information contact:

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